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Structural and valence investigations of ternary cerium platinum borides

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The crystal structures of ternary cerium platinum borides $CEPt_xB$ (x=2,3,4) have been investigated from single crystal and/or powder diffraction using X-ray conventional and high resolution technique: $CePt_2B$, new structure type, space group $P6_222$ (N180), a=0.54898(5) nm, c=0.78890(9) nm (X-ray single crystal and powder diffraction); $CePt_3B$, new structure type, space group P4mm, a=0.4003(1) nm, c=0.5070(1) nm (X-ray powder diffraction); $CePt_4B$, structure type $CeCo_4B$, space group P6/mmm, a=0.5440(1) nm, c=0.7580(1) nm (X-ray single crystal and powder diffraction).The samples were obtained by arc melting, annealed in evacuated silica tubes at 1070 K for twenty days and finally cooled to room temperature by submerging the tube in water. Valence of Ce has been checked using L3 absorption edge technique. All samples are non superconducting at 2K. Preliminary magnetic measurements will be reported.